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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,040	02/05/2007	Yasuo Okamoto	Q79258	6750

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EXAMINER	
LEE, REBECCA Y	

ART UNIT	PAPER NUMBER
1793	

NOTIFICATION DATE	DELIVERY MODE
08/11/2010	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No.	Applicant(s)	
	10/583,040	OKAMOTO, YASUO	
	Examiner	Art Unit	
	REBECCA LEE	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 June 2010*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,2,4,5,8,9,11-16 and 20* is/are pending in the application.

4a) Of the above claim(s) *2 and 14-16* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,5,8,9,11-13 and 20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 06/18/10 has been entered.

Status of Claims

Claims 2 and 14-16 remain withdrawn. Claims 3, 6-7, 10 and 17-19 are cancelled. Claims 1, 4-5, 8-9, 11-13 and 20 where claim 1 has been amended in view of amendment filed 06/18/10.

Status of Previous Rejections

The rejections of claims 1, 4-5, 8-9, 11-13 and 20 under 35 U.S.C. 103(a) have been maintained.

Claim Objections

Claim 4 is objected to because of the following informalities: the upper limit of the recited heating temperature should be 470 °C instead of 4700 °C, in light of specification and previously filed claims. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1, 4-5, 8-9 and 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamio et al. (JP 2000265232) in view of Sakamoto et al. (JP 64039339) and Yanagimoto et al. (US 20040261615).

Regarding claims 1, 4-5, 8-9 and 12, Kamio et al. teach a process of producing an aluminum-alloy shaped product after continuous casting the aluminum alloy comprising preheat treatment at a temperature of 490-510 °C for 3 to 5 hours (claim 2); heating (forging) the forging material during a course of forging at 400-500°C (claim 2) and a step of post-heat treatment at 190-200 °C for 5 to 7 hours without performing solid solution treatment (claim 4).

Even though the claimed preheat temperature range and the range disclosed by Kamio et al. do not overlap, a prima facie case still exists where the claimed range and the range disclosed by the prior art are close enough that one skilled in the art would have expected the same result MPEP 2144.05 I.

In addition, it is well held that discovering an optimum value of a result effective variable requires only routine skill in the art. In the instant case, the pre-heating (homogenizing) temperature is a result effective variable since it affects the forgeability

of the forging material and the uniformity of mechanical characteristics of the forged aluminum alloy product, as evidenced by Yanagimoto et al. (section 0082). Thus, one of ordinary skill in the art would have optimized the pre-heating (homogenizing) temperature in the process of Kamio et al. in view of Sakamoto et al. in order to achieve desired forgeability of the forging material and the uniformity of mechanical characteristics of the forged aluminum alloy product.

Kamio et al. do not expressly teach the continuously cast rod of aluminum alloy with the claimed composition.

Sakamoto et al. disclose a continuously cast rod of an aluminum alloy, which is suitable for forging, with a composition relative to that of the claimed invention, in weight percent, as shown below (abstract and page 6, lines 19-20):

Element	Instant claims	Sakamoto et al.	overlap
Si	10.5-13.5	7.5-22	10.5-13.5
Fe	0.15-0.65	0.25-1.0	0.25-0.65
Cu	2.5-5.5	3.0-7.0	3.0-5.5
Mg	0.5-1.3	0.3-1.0	0.5-1.0
Ni	0.8-3	0.3-2.0	0.8-2.0
Sr	0.003-0.03	0.005-0.1	0.005-0.03
Mn	0.1-1.0	0.25-1.0	0.25-1.0
Al	balance	balance	balance

It would have been obvious to one of ordinary skill in the art to use the aluminum alloy cast rod of Sakamoto et al. in the process of Kamio et al. since Sakamoto et al. teach that such an aluminum alloy exhibit excellent wear resistance and forgebility by casting and heat-treating (abstract).

In addition, the amounts of Si, Fe, Cu, Mg, Ni, Sr, Mn and Al disclosed by Kamio et al. in view of Sakamoto et al. overlap the claimed amounts of Si, Fe, Cu, Mg, Ni, Sr,

Mn and Al of the instant invention, which is prima facie evidence of obviousness MPEP 2144.05 I. It would have been obvious to one of ordinary skill in the art to have selected claimed amounts of Si, Fe, Cu, Mg, Ni, Sr, Mn and Al from the amounts disclosed by Kamio et al. in view of Sakamoto et al. because Sakamoto et al. disclose the same utility throughout the disclosed ranges.

Kamio et al. further teach that P in an amount of 0.005-0.02 wt% would be added to the aluminum alloy. One of ordinary skill in the art would have introduced 0.005-0.02 wt% of P into the alloy of Kamio et al. in view of Sakamoto et al. in order to achieve uniform dispersion of primary phase Si and eutectic crystal Si for desired mechanical strength, fatigue strength and abrasion resistance of the aluminum alloy, as taught by Kamio et al. (section 0009)

Regarding claim 11, Kamio et al. disclose the forged aluminum alloy exhibits excellent fatigue strength at high temperature (abstract). One of ordinary skill in the art would have expected the percent reduction of high temperature fatigue strength resistance of a portion of the forging material is regulated to 90% or less as claimed.

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamio et al. (JP 2000265232) in view of Sakamoto et al. (JP 64039339) and Yanagimoto et al. (US 20040261615) as applied to claim 1 above, and further in view of Evans et al. (US7267734).

Regarding claim 13, Sakamoto et al. disclose the casting of the molten aluminum alloy is conducted at 670-850 °C (Page 5, lines 6-7), which overlaps the claimed range MPEP 2144.05 I.

Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. is silent about the casting speed. However, it is well held that discovering an optimum value of a result-effective variable requires only routine skill in the art MPEP 2144.05 II. In the instant case, casting speed is a result effective variable since it affects the intermetallic phases of the alloy, as evidenced by Evans et al. (Column 3, lines 65-67 and Column 4, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the casting speed of Kamio et al. in view of Sakamoto et al. Yanagimoto et al. in order to achieve desired intermetallic phases of the aluminum alloy.

Regarding claim 20, Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. is silent about the casting speed. However, it is well held that discovering an optimum value of a result-effective variable requires only routine skill in the art MPEP 2144.05 II. In the instant case, casting speed is a result effective variable since it affects the intermetallic phases of the alloy, as evidenced by Evans et al. (Column 3, lines 65-67 and Column 4, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the casting speed of Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. in order to achieve desired intermetallic phases of the aluminum alloy.

Response to Arguments

Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection.

Applicant argues that Kamio, Sakamoto or Yanagimoto does not teach an aluminum alloy containing both Ni and P as instant claims as amended. However, as stated above, one of ordinary skill in the art would have been motivated to introduce 0.005-0.02 wt% of P into the alloy of Sakamoto et al., which contains Ni, in order to achieve uniform dispersion of primary phase Si and eutectic crystal Si for desired mechanical strength, fatigue strength and abrasion resistance of the aluminum alloy, by the teaching of Kamio et al. (section 0009)

Applicant's remaining arguments filed 06/18/10 have been fully considered but they are not persuasive.

Applicant argues that the claimed preheating temperatures would have yield to unexpected results by comparing to the examples1 and 1-1 present in instant specification. However, such comparison is incommensurate with the scope of instant claims since the aluminum alloy of examples1 and 1-1 do not contain Ni and P, while instant claims require both Ni and P to be present in the aluminum alloy. Thus, applicant's argument is not convincing.

Applicant also tries to establish the criticality of the claimed preheating temperature by referring to the data submitted with the argument filed 12/28/09. The examiner would like to remind the applicant that any objective evidence such as unexpected result must be factually supported by an appropriate affidavit or declaration

to be of probative value. See In re De Blauwe, 736 F.2d 699, 705, 222 USPQ 191, 196 (Fed. Cir. 1984) and MPEP 716.01(c). Evidence of unexpected properties may be in the form of a direct or indirect comparison of the claimed invention with the closest prior art which is commensurate in scope with the claims. See In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) and MPEP § 716.02(d) - § 716.02(e). Since the proof of factual evidence is lacking in applicant's assertion of unexpected results, the examiner does not find the argument persuasive.

Applicant further argues that in the examples of Sakamoto, none of them contains Ni. However, the teachings of Sakamoto et al., as a whole, do not limited to the examples. As stated above, Sakamoto et al. teaches Ni could be added in an amount of 0.3-2.0 wt%, which overlaps the claimed amount, and is prima facie evidence of obviousness MPEP 2144.05 I. In response to the argument that Sakamoto et al. do not teach the present of P, as stated above, one of ordinary skill in the art would have been motivated to introduce 0.005-0.02 wt% of P into the alloy of Sakamoto et al. in order to achieve uniform dispersion of primary phase Si and eutectic crystal Si for desired mechanical strength, fatigue strength and abrasion resistance of the aluminum alloy, by the teaching of Kamio et al. (section 0009).

Applicant also argues that the method disclosed by Sakamoto is different form Kamio et al., thus no reason to combine Sakamoto et al. with Kamio. However, as sated above, one of ordinary skill in the art would have been motivated to use the aluminum alloy cast rod of Sakamoto et al. in the process of Kamio et al. because Sakamoto et al. teach that such an aluminum alloy exhibit excellent wear resistance and forgebility by

casting and heat-treating (abstract). Since applicant has not provided any evidence to show that the aluminum alloy of Sakamoto et al. would have upset the process of Kamio et al., applicant's argument is not found convincing.

Conclusion

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REBECCA LEE whose telephone number is (571)270-5856. The examiner can normally be reached on Monday-Friday 8:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, JERRY LORENGO can be reached on (571)272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. L./
Examiner, Art Unit 1793

/J.A. LORENGO/
Supervisory Patent Examiner, Art Unit 1793